We Claim:

1.   A method of maintaining a route table in a routing device, the route table including a plurality of routes between network devices in a network, the method comprising:

10   registering a given set of routes;

        determining if any of the routes in the given set of routes has changed; and

        listing data identifying each route in the given set of routes that has been determined to be changed.

2.   The method as defined by claim 1 wherein the given set of routes is associated with
15 a given routing protocol.

3.   The method as defined by claim 1 further comprising:

        if determined to have changed, then generating a first data value indicating that at
20 least one of the routes in the given set of routes has changed.

4.   The method as defined by claim 3 wherein each route in the set of routes includes an associated sequence number, the first data value being a checksum that is a function of at least one of the sequence numbers.
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5.   The method as defined by claim 1 wherein a given route in the table includes a list data value indicating whether the given route has been listed, the given route being in the given set of routes.

30   6.   The method as defined by claim 5 wherein the list data value is a single bit associated with the given set of routes.

7.   The method as defined by claim 5 wherein the act of listing comprises:

        determining if the list data value has been set; and

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listing the given route if it has been determined that the list data value has not been set, the given route not being listed if it has been determined that the list data value has been set.

8.   The method as defined by claim 7 wherein the act of listing further comprises:
       setting the list data value.

9.   The method as defined by claim 1 wherein the listed data includes a pointer to a route in the route table.

10.   The method as defined by claim 1 further comprising:
       accessing the list to determine each route that has changed.

11.   The method as defined by claim 10 wherein the list is accessed once during each of a selected polling interval.

12.   An apparatus for maintaining a route table in a routing device, the route table including a plurality of routes between network devices in a network, the apparatus comprising:
       a registration module that registers a given set of routes;
       a route examiner operatively coupled with the registration module, the route examiner determining if any of the routes in the given set of routes has changed; and
       a list generator operatively coupled with the route examiner, the list generator listing data identifying each route in the given set of routes that has been determined to have changed.

13.   The apparatus as defined by claim 12 wherein the given set of routes is associated with a given routing protocol.

14.   The apparatus as defined by claim 12 further comprising:

a first data value generator operatively coupled with the route examiner, the first data value generator generating, if at least one of the routes is determined to have changed, a first data value indicating that the at least one of the routes in the given set of routes has changed.

15.   The apparatus as defined by claim 14 wherein each route in the set of routes includes an associated sequence number, the first data value being a checksum that is a function of at least one of the sequence numbers.

16.   The apparatus as defined by claim 12 further including a list data value generator operatively coupled with the list generator, the list data value generator generating a list data value indicating whether a given route has been listed, the given route being in the given set of routes.

17.   The apparatus as defined by claim 16 wherein the list data value is a single bit associated with the given set of routes.

18.   The apparatus as defined by claim 16 wherein the list generator comprises:
       a determiner that determines if the list data value for the given route has been set; and
       a lister that lists data identifying the given route if it has been determined that the list data value has not been set, data identifying the given route not being listed if it has been determined that the list data value has been set.

19.   The apparatus as defined by claim 18 wherein the list generator further comprises:
       a list data value setter that sets the list data value.

20.   The apparatus as defined by claim 12 wherein the listed data includes a pointer to a route in the route table.

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21.   The apparatus as defined by claim 12 further comprising:

a list accessing module that accesses the list to determine each route that has changed.

22.   The apparatus as defined by claim 21 further comprising a poller that accesses the list once during each of a selected polling interval.

23.   A computer program product for use on a computer system for maintaining a route table in a routing device, the route table including a plurality of routes between network devices in a network, the computer program product comprising a computer usable medium having computer readable program code thereon, the computer readable program code including:

program code for registering a given set of routes;

program code for determining if any of the routes in the given set of routes has changed; and

program code for listing data identifying each route in the given set of routes that has been determined to have changed.

24.   The computer program product as defined by claim 23 wherein the given set of routes is associated with a given routing protocol.

25.   The computer program product as defined by claim 23 further comprising:

program code for generating a first data value indicating that at least one of the routes in the given set of routes has changed if the at least one of the routes determined to have changed.

26.   The computer program product as defined by claim 25 wherein each route in the set of routes includes an associated sequence number, the first data value being a checksum that is a function of at least one of the sequence numbers.

27.   The computer program product as defined by claim 23 wherein a given route in the table includes a list data value indicating whether the given route has been listed, the given route being in the given set of routes.

28.   The computer program product as defined by claim 27 wherein the list data value is a single bit associated with the given set of routes.

29.   The computer program product as defined by claim 27 wherein the program code for listing comprises:

program code for determining if the list data value has been set; and

program code for listing the given route if it has been determined that the list data value has not been set, the given route not being listed if it has been determined that the list data value has been set.

30.   The computer program product as defined by claim 29 wherein the program code for listing further comprises:

program code for setting the list data value.

31.   The computer program product as defined by claim 23 wherein the listed data includes a pointer to a route in the route table.

32.   The computer program product as defined by claim 23 further comprising:

program code for accessing the list to determine each route that has changed.

33.   The computer program product as defined by claim 32 wherein the list is accessed once during each of a selected polling interval.

34.   A method of determining if a given route in a route table has changed, the route being in a given set of routes, the method comprising:

accessing a list of routes associated with the given set of routes; and

determining if data identifying the given route is listed in the list of routes, the given route being deemed to have changed if determined to be listed in the list of routes.

35.   The method as defined by claim 34 wherein the list includes data identifying at least one route in the route table.

36.   The method as defined by claim 34 wherein the given set of routes is associated with a given protocol.

37.   The method as defined by claim 34 wherein the list of routes is accessed once during every polling period.

38.   The method as defined by claim 34 wherein the data identifying the given route includes a pointer to the route in the route table.

39.   The method as defined by claim 34 further comprising:

examining a check data value to determine if any one of the routes in the given set of routes has changed,

the list of routes being accessed after it is determined that any one of the routes in the given set of routes has changed.

40.   The method as defined by claim 39 wherein the check data value is a checksum.

41.   An apparatus for determining if a given route in a route table has changed, the route being in a given set of routes, the apparatus comprising:

a list accessing module that accesses a list of routes associated with the given set of routes; and

a route examiner operatively coupled with the list accessing module, the route examiner determining if data identifying the given route is listed in the list of routes, the given route being deemed to have changed if determined to be listed in the list of routes.

42.   The apparatus as defined by claim 41 wherein the list includes data identifying at least one route in the route table.

43.   The apparatus as defined by claim 41 wherein the given set of routes is associated with a given protocol.

44.   The apparatus as defined by claim 41 further comprising a poller that accesses the list once during every polling period.

45.   The apparatus as defined by claim 41 wherein the data identifying the given route includes a pointer to the route in the route table.

46.   The apparatus as defined by claim 41 further comprising:

a check data value that examines a check data value to determine if any one of the routes in the given set of routes has changed,

the list of routes being accessed after it is determined that any one of the routes in the given set of routes has changed.

47.   The apparatus as defined by claim 46 wherein the check data value is a checksum.

48.   A computer program product for use on a computer system for determining if a given route in a route table has changed, the route being in a given set of routes, the computer program product comprising a computer usable medium having computer readable program code thereon, the computer readable program code including:

program code for accessing a list of routes associated with the given set of routes; and

program code for determining if data identifying the given route is listed in the list of routes, the given route being deemed to have changed if determined to be listed in the list of routes.

49.   The computer program product as defined by claim 48 wherein the list includes data identifying at least one route in the route table.

50.   The computer program product as defined by claim 48 wherein the given set of routes is associated with a given protocol.

51.   The computer program product as defined by claim 48 wherein the list of routes is accessed once during every polling period.

52.   The computer program product as defined by claim 48 wherein the data identifying the given route includes a pointer to the route in the route table.

53.   The computer program product as defined by claim 48 further comprising:

        program code for examining a check data value to determine if any one of the routes in the given set of routes has changed,

        the list of routes being accessed after it is determined that any one of the routes in the given set of routes has changed.

54.   The computer program product as defined by claim 53 wherein the check data value is a checksum.

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